§ 233.9 Reports.

Not later than April 1, 1997 and every 5 years thereafter, each carrier shall file with FRA a signal system status report ''Signal System Five-year Report'' on a form to be provided by FRA in accordance with instructions and definitions provided on the report.

[61 FR 33872, July 1, 1996]

§ 233.11 Civil penalties.

Any person (an entity of any type covered under 1 U.S.C. 1, including but not limited to the following: a railroad; a manager, supervisor, official, or other employee or agent of a railroad; any owner, manufacturer, lessor, or lessee of railroad equipment, track, or facilities; any independent contractor providing goods or services to a railroad; and any employee of such owner, manufacturer, lessor, lessee, or independent contractor) who violates any requirement of this part or causes the violation of any such requirement is subject to a civil penalty of at least $550 and not more than $16,000 per violation, except that: Penalties may be assessed against individuals only for willful violations, and, where a grossly negligent violation or a pattern of repeated violations has created an imminent hazard of death or injury to persons, or has caused death or injury, a penalty not to exceed $27,000 per violation may be assessed. Each day a violation continues shall constitute a separate offense. See appendix A to this part for a statement of agency civil penalty policy.

[63 FR 11623, Mar. 10, 1998, as amended at 69 FR 30595, May 28, 2004; 72 FR 51197, Sept. 6, 2007]

§ 233.13 Criminal penalty.

Whoever knowingly and willfully—

(a) Makes, causes to be made, or participates in the making of a false entry in reports required to be filed by this part; or

(b) Files a false report or other document required to be filed by this part is subject to a $5,000 fine and 2 years imprisonment as prescribed by 49 U.S.C. 522(a) and section 209(e) of the Federal Railroad Safety Act of 1970, as amended (45 U.S.C. 438(e)).

APPENDIX A TO PART 233—SCHEDULE OF CIVIL PENALTIES [1]

Section		Violation	Willful violation
233.5	Accidents resulting from signal failure	$2,500	$5,000
233.7	Signal failure reports	5,000	7,500
233.9	Annual reports	1,000	2,000

[53 FR 52936, Dec. 29, 1988, as amended at 63 FR 11623, Mar. 10, 1998; 69 FR 30595, May 28, 2004]

PART 234—GRADE CROSSING SIGNAL SYSTEM SAFETY

Subpart A—General

Sec.

Subpart B—Reports

Subpart C—Response to Reports of Warning System Malfunction

[1] A penalty may be assessed against an individual only for a willful violation. The Administrator reserves the right to assess a penalty of up to $27,000 for any violation where circumstances warrant. See 49 CFR part 209, appendix A.

AUTHORITY: 49 U.S.C. 20103, 20107; 28 U.S.C. 2461, note; and 49 CFR 1.49.

SOURCE: 61 FR 31806, June 20, 1996, unless otherwise noted.

Subpart A—General

§ 234.1 Scope.

This part imposes minimum maintenance, inspection, and testing standards for highway-rail grade crossing warning systems. This part also prescribes standards for the reporting of failures of such systems and prescribes minimum actions railroads must take when such warning systems malfunction. This part does not restrict a railroad from adopting and enforcing additional or more stringent requirements not inconsistent with this part.

§ 234.3 Application.

This part applies to all railroads except:

(a) A railroad that exclusively operates freight trains only on track which is not part of the general railroad system of transportation;

(b) Rapid transit operations within an urban area that are not connected to the general railroad system of transportation; and

(c) A railroad that operates passenger trains only on track inside an installation that is insular; i.e., its operations are limited to a separate enclave in such a way that there is no reasonable expectation that the safety of the public—except a business guest, a licensee of the railroad or an affiliated entity, or a trespasser—would be affected by the operation. An operation will not be considered insular if one or more of the following exists on its line:

(1) A public highway-rail crossing that is in use;

(2) An at-grade rail crossing that is in use;

(3) A bridge over a public road or waters used for commercial navigation; or

(4) A common corridor with a railroad, i.e., its operations are within 30 feet of those of any railroad.

§ 234.4 Preemptive effect.

Under 49 U.S.C. 20106 (formerly §205 of the Federal Railroad Safety Act of 1970 (45 U.S.C. 434)), issuance of these regulations preempts any State law,

rule, regulation, order, or standard covering the same subject matter, except a provision directed at an essentially local safety hazard that is consistent with this part and that does not impose an undue burden on interstate commerce.

§ 234.5 Definitions.

As used in this part:

Activation failure means the failure of an active highway-rail grade crossing warning system to indicate the approach of a train at least 20 seconds prior to the train's arrival at the crossing, or to indicate the presence of a train occupying the crossing, unless the crossing is provided with an alternative means of active warning to highway users of approaching trains. (This failure indicates to the motorist that it is safe to proceed across the railroad tracks when, in fact, it is not safe to do so.) A grade crossing signal system does not indicate the approach of a train within the meaning of this paragraph if—more than 50% of the flashing lights (not gate arm lights) on any approach lane to the crossing are not functioning as intended, or in the case of an approach lane for which two or more pairs of flashing lights are provided, there is not at least one flashing light pair operating as intended. Back lights on the far side of the crossing are not considered in making these determinations.

Appropriately equipped flagger means a person other than a train crewmember who is equipped with a vest, shirt, or jacket of a color appropriate for daytime flagging such as orange, yellow, strong yellow green or fluorescent versions of these colors or other generally accepted high visibility colors. For nighttime flagging, similar outside garments shall be retro reflective. Acceptable hand signal devices for daytime flagging include '' STOP/SLOW'' paddles or red flags. For nighttime flagging, a flashlight, lantern, or other lighted signal shall be used. Inasmuch as Part VI of the Federal Highway Administration's Manual on Uniform Traffic Control Devices addresses standards and guides for flaggers and flagging equipment for highway traffic control, FRA recommends that railroads be aware of the standards and follow them to the greatest extent possible. Copies of the latest MUTCD provisions regarding flagging will be available from FRA, as well as FMCSA, as changes are made in this area.

Credible report of system malfunction means specific information regarding a malfunction at an identified highway-rail crossing, supplied by a railroad employee, law enforcement officer, highway traffic official, or other employee of a public agency acting in an official capacity.

False activation means the activation of a highway-rail grade crossing warning system caused by a condition that requires correction or repair of the grade crossing warning system. (This failure indicates to the motorist that it is not safe to cross the railroad tracks when, in fact, it is safe to do so.)

Highway-rail grade crossing means a location where a public highway, road, street, or private roadway, including associated sidewalks and pathways, crosses one or more railroad tracks at grade.

Partial activation means activation of a highway-rail grade crossing warning system indicating the approach of a train, however, the full intended warning is not provided due to one of the following conditions:

(1) At non-gated crossings equipped with one pair of lights designed to flash alternately, one of the two lights does not operate properly (and approaching motorists can not clearly see flashing back lights from the warning lights on the other side of the crossing);

(2) At gated crossings, the gate arm is not in a horizontal position; or

(3) At gated crossings, any portion of a gate arm is missing if that portion normally had a gate arm flashing light attached.

Train means one or more locomotives, with or without cars.

Warning system malfunction means an activation failure, a partial activation, or a false activation of a highway-rail grade crossing warning system.

§ 234.6 Penalties.

(a) *Civil penalty*. Any person (an entity of any type covered under 1 U.S.C. 1, including but not limited to the following: a railroad; a manager, supervisor, official, or other employee or

agent of a railroad; any owner, manufacturer, lessor, or lessee of railroad equipment, track, or facilities; any independent contractor providing goods or services to a railroad; and any employee of such owner, manufacturer, lessor, lessee, or independent contractor) who violates any requirement of this part or causes the violation of any such requirement is subject to a civil penalty of at least $550, but not more than $16,000 per violation, except that: penalties may be assessed against individuals only for willful violations, and where a grossly negligent violation or a pattern of repeated violations has created an imminent hazard of death or injury to persons, or has caused death or injury, a penalty not to exceed $27,000 per violation may be assessed. Each day a violation continues shall constitute a separate offense. Appendix A to this part contains a schedule of civil penalty amounts used in connection with this rule. The railroad is not responsible for compliance with respect to any condition inconsistent with the technical standards set forth in this part where such variance arises as a result of actions beyond the control of the railroad and the railroad could not have prevented the variance through the exercise of due diligence. The foregoing sentence does not excuse any instance of noncompliance resulting from the actions of the railroad's employees, agents, or contractors.

(b) *Criminal penalty.* Whoever knowingly and willfully makes, causes to be made, or participates in the making of a false entry in reports required to be filed by this part, or files a false report or other document required to be filed by this part is subject to a $5,000 fine and 2 years imprisonment as prescribed by 49 U.S.C. 522(a) and section 209(e) of the Federal Railroad Safety Act of 1970, as amended (45 U.S.C. 438(e)).

[61 FR 31806, June 20, 1996, as amended at 63 FR 11623, Mar. 10, 1998; 69 FR 30595, May 28, 2004; 72 FR 51197, Sept. 6, 2007]

Subpart B—Reports

§ 234.7 Accidents involving grade crossing signal failure.

(a) Each railroad shall report to FRA every impact between on-track railroad equipment and an automobile, bus, truck, motorcycle, bicycle, farm vehicle, or pedestrian at a highway-rail grade crossing involving an activation failure. Notification shall be provided to the National Response Center within 24 hours of occurrence at (800) 424–0201. Complete reports shall thereafter be filed with FRA pursuant to § 234.9 of this part (activation failure report) and 49 CFR 225.11 (accident/ incident report).

(b) Each telephone report must state the:

(1) Name of the railroad;

(2) Name, title, and telephone number of the individual making the report;

(3) Time, date, and location of accident;

(4) U. S. DOT-AAR Grade Crossing Identification Number;

(5) Circumstances of the accident, including operating details of the grade crossing warning device;

(6) Number of persons killed or injured, if any;

(7) Maximum authorized train speed; and

(8) Posted highway speed limit, if known.

§ 234.9 Grade crossing signal system failure reports.

Each railroad shall report to FRA within 15 days each activation failure of a highway-rail grade crossing warning system. FRA Form No. 6180–83, ''Highway-Rail Grade Crossing Warning System Failure Report,'' shall be used for this purpose and completed in accordance with instructions printed on the form.

Subpart C—Response to Reports of Warning System Malfunction

§ 234.101 Employee notification rules.

Each railroad shall issue rules requiring its employees to report to persons designated by that railroad, by the quickest means available, any warning system malfunction.

§ 234.103 Timely response to report of malfunction.

(a) Upon receipt of a credible report of a warning system malfunction, a railroad having maintenance responsibility for the warning system shall

promptly investigate the report and determine the nature of the malfunction. The railroad shall take appropriate action as required by § 234.207.

(b) Until repair or correction of the warning system is completed, the railroad shall provide alternative means of warning highway traffic and railroad employees in accordance with §§ 234.105, 234.106 or 234.107 of this part.

(c) Nothing in this subpart requires repair of a warning system, if, acting in accordance with applicable State law, the railroad proceeds to discontinue or dismantle the warning system. However, until repair, correction, discontinuance, or dismantling of the warning system is completed, the railroad shall comply with this subpart to ensure the safety of the traveling public and railroad employees.

§ 234.105 Activation failure.

Upon receipt of a credible report of warning system malfunction involving an activation failure, a railroad having maintenance responsibility for the warning system shall promptly initiate efforts to warn highway users and railroad employees at the subject crossing by taking the following actions:

(a) Prior to any train's arrival at the crossing, notify the train crew of the report of activation failure and notify any other railroads operating over the crossing;

(b) Notify the law enforcement agency having jurisdiction over the crossing, or railroad police capable of responding and controlling vehicular traffic; and

(c) Provide for alternative means of actively warning highway users of approaching trains, consistent with the following requirements (see appendix B for a summary chart of alternative means of warning):

(1)(i) If an appropriately equipped flagger provides warning for each direction of highway traffic, trains may proceed through the crossing at normal speed.

(ii) If at least one uniformed law enforcement officer (including a railroad police officer) provides warning to highway traffic at the crossing, trains may proceed through the crossing at normal speed.

(2) If an appropriately equipped flagger provides warning for highway traffic, but there is not at least one flagger providing warning for each direction of highway traffic, trains may proceed with caution through the crossing at a speed not exceeding 15 miles per hour. Normal speed may be resumed after the locomotive has passed through the crossing.

(3) If there is not an appropriately equipped flagger or uniformed law enforcement officer providing warning to highway traffic at the crossing, each train must stop before entering the crossing and permit a crewmember to dismount to flag highway traffic to a stop. The locomotive may then proceed through the crossing, and the flagging crewmember may reboard the locomotive before the remainder of the train proceeds through the crossing.

(d) A locomotive's audible warning device shall be activated in accordance with railroad rules regarding the approach to a grade crossing.

§ 234.106 Partial activation.

Upon receipt of a credible report of a partial activation, a railroad having maintenance responsibility for the warning system shall promptly initiate efforts to warn highway users and railroad employees at the subject crossing in the same manner as required for false activations (§ 234.107).

§ 234.107 False activation.

Upon receipt of a credible report of a false activation, a railroad having maintenance responsibility for the highway-rail grade crossing warning system shall promptly initiate efforts to warn highway users and railroad employees at the crossing by taking the following actions:

(a) Prior to a train's arrival at the crossing, notify the train crew of the report of false activation and notify any other railroads operating over the crossing;

(b) Notify the law enforcement agency having jurisdiction over the crossing, or railroad police capable of responding and controlling vehicular traffic; and

(c) Provide for alternative means of actively warning highway users of approaching trains, consistent with the

following requirements (see Appendix B for a summary chart of alternative means of warning).

(1)(i) If an appropriately equipped flagger is providing warning for each direction of highway traffic, trains may proceed through the crossing at normal speed.

(ii) If at least one uniformed law enforcement officer (including a railroad police officer) provides warning to highway traffic at the crossing, trains may proceed through the crossing at normal speed.

(2) If there is not an appropriately equipped flagger providing warning for each direction of highway traffic, or if there is not at least one uniformed law enforcement officer providing warning, trains with the locomotive or cab car leading, may proceed with caution through the crossing at a speed not exceeding 15 miles per hour. Normal speed may be resumed after the locomotive has passed through the crossing. In the case of a shoving move, a crewmember shall be on the ground to flag the train through the crossing.

(3) In lieu of complying with paragraphs (c) (1) or (2) of this section, a railroad may temporarily take the warning system out of service if the railroad complies with all requirements of §234.105, ''Activation failure.''

(d) A locomotive's audible warning device shall be activated in accordance with railroad rules regarding the approach to a grade crossing.

§234.109 Recordkeeping.

(a) Each railroad shall keep records pertaining to compliance with this subpart. Records may be kept on forms provided by the railroad or by electronic means. Each railroad shall keep the following information for each credible report of warning system malfunction:

(1) Location of crossing (by highway name and DOT/AAR Crossing Inventory Number);

(2) Time and date of receipt by railroad of report of malfunction;

(3) Actions taken by railroad prior to repair and reactivation of repaired system; and

(4) Time and date of repair.

(b) Each railroad shall retain for at least one year (from the latest date of railroad activity in response to a credible report of malfunction) all records referred to in paragraph (a) of this section. Records required to be kept shall be made available to FRA as provided by 49 U.S.C. 20107 (formerly 208 of the Federal Railroad Safety Act of 1970 (45 U.S.C. 437)).

Subpart D—Maintenance, Inspection, and Testing

MAINTENANCE STANDARDS

§234.201 Location of plans.

Plans required for proper maintenance and testing shall be kept at each highway-rail grade crossing warning system location. Plans shall be legible and correct.

§234.203 Control circuits.

All control circuits that affect the safe operation of a highway-rail grade crossing warning system shall operate on the fail-safe principle.

§234.205 Operating characteristics of warning system apparatus.

Operating characteristics of electromagnetic, electronic, or electrical apparatus of each highway-rail crossing warning system shall be maintained in accordance with the limits within which the system is designed to operate.

§234.207 Adjustment, repair, or replacement of component.

(a) When any essential component of a highway-rail grade crossing warning system fails to perform its intended function, the cause shall be determined and the faulty component adjusted, repaired, or replaced without undue delay.

(b) Until repair of an essential component is completed, a railroad shall take appropriate action under §234.105, Activation failure, §234.106, Partial activation, or §234.107, False activation, of this part.

§234.209 Interference with normal functioning of system.

(a) The normal functioning of any system shall not be interfered with in testing or otherwise without first taking measures to provide for safety of

highway traffic that depends on normal functioning of such system.

(b) Interference includes, but is not limited to:

(1) Trains, locomotives or other railroad equipment standing within the system's approach circuit, other than normal train movements or switching operations, where the warning system is not designed to accommodate those activities.

(2) Not providing alternative methods of maintaining safety for the highway user while testing or performing work on the warning systems or on track and other railroad systems or structures which may affect the integrity of the warning system.

§ 234.211 Security of warning system apparatus.

Highway-rail grade crossing warning system apparatus shall be secured against unauthorized entry.

§ 234.213 Grounds.

Each circuit that affects the proper functioning of a highway-rail grade crossing warning system shall be kept free of any ground or combination of grounds that will permit a current flow of 75 percent or more of the release value of any relay or electromagnetic device in the circuit. This requirement does not apply to: circuits that include track rail; alternating current power distribution circuits that are grounded in the interest of safety; and common return wires of grounded common return single break circuits.

§ 234.215 Standby power system.

A standby source of power shall be provided with sufficient capacity to operate the warning system for a reasonable length of time during a period of primary power interruption. The designated capacity shall be specified on the plans required by § 234.201 of this part.

[66 FR 49560, Sept. 28, 2001]

§ 234.217 Flashing light units.

(a) Each flashing light unit shall be properly positioned and aligned and shall be visible to a highway user approaching the crossing.

(b) Each flashing light unit shall be maintained to prevent dust and moisture from entering the interior of the unit. Roundels and reflectors shall be clean and in good condition.

(c) All light units shall flash alternately. The number of flashes per minute for each light unit shall be 35 minimum and 65 maximum.

§ 234.219 Gate arm lights and light cable.

Each gate arm light shall be maintained in such condition to be properly visible to approaching highway users. Lights and light wire shall be secured to the gate arm.

§ 234.221 Lamp voltage.

The voltage at each lamp shall be maintained at not less than 85 percent of the prescribed rating for the lamp.

§ 234.223 Gate arm.

Each gate arm, when in the downward position, shall extend across each lane of approaching highway traffic and shall be maintained in a condition sufficient to be clearly viewed by approaching highway users. Each gate arm shall start its downward motion not less than three seconds after flashing lights begin to operate and shall assume the horizontal position at least five seconds before the arrival of any normal train movement through the crossing. At those crossings equipped with four quadrant gates, the timing requirements of this section apply to entrance gates only.

§ 234.225 Activation of warning system.

A highway-rail grade crossing warning system shall be maintained to activate in accordance with the design of the warning system, but in no event shall it provide less than 20 seconds warning time for the normal operation of through trains before the grade crossing is occupied by rail traffic.

§ 234.227 Train detection apparatus.

(a) Train detection apparatus shall be maintained to detect a train or railcar in any part of a train detection circuit, in accordance with the design of the warning system.

(b) If the presence of sand, rust, dirt, grease, or other foreign matter is known to prevent effective shunting, a railroad shall take appropriate action under §234.105, ''Activation failure,'' to safeguard highway users.

§ 234.229 Shunting sensitivity.

Each highway-rail grade crossing train detection circuit shall detect the application of a shunt of 0.06 ohm resistance when the shunt is connected across the track rails of any part of the circuit.

§ 234.231 Fouling wires.

Each set of fouling wires in a highway-rail grade crossing train detection circuit shall consist of at least two discrete conductors. Each conductor shall be of sufficient conductivity and shall be maintained in such condition to ensure proper operation of the train detection apparatus when the train detection circuit is shunted. Installation of a single duplex wire with single plug acting as fouling wires is prohibited. Existing installations having single duplex wires with a single plug for fouling wires may be continued in use until they require repair or replacement.

§ 234.233 Rail joints.

Each non-insulated rail joint located within the limits of a highway-rail grade crossing train detection circuit shall be bonded by means other than joint bars and the bonds shall be maintained in such condition to ensure electrical conductivity.

§ 234.235 Insulated rail joints.

Each insulated rail joint used to separate train detection circuits of a highway-rail grade crossing shall be maintained to prevent current from flowing between rails separated by the insulation in an amount sufficient to cause a failure of the train detection circuit.

§ 234.237 Reverse switch cut-out circuit.

A switch, when equipped with a switch circuit controller connected to the point and interconnected with warning system circuitry, shall be maintained so that the warning system can only be cut out when the switch point is within one-half inch of full reverse position.

§ 234.239 Tagging of wires and interference of wires or tags with signal apparatus.

Each wire shall be tagged or otherwise so marked that it can be identified at each terminal. Tags and other marks of identification shall be made of insulating material and so arranged that tags and wires do not interfere with moving parts of the apparatus. This requirement applies to each wire at each terminal in all housings including switch circuit controllers and terminal or junction boxes. This requirement does not apply to flashing light units, gate arm light units and other auxiliary light units. The local wiring on a solid state crossing controller rack does not require tags if the wiring is an integral part of the solid state equipment.

§ 234.241 Protection of insulated wire; splice in underground wire.

Insulated wire shall be protected from mechanical injury. The insulation shall not be punctured for test purposes. A splice in underground wire shall have insulation resistance at least equal to that of the wire spliced.

§ 234.243 Wire on pole line and aerial cable.

Wire on a pole line shall be securely attached to an insulator that is properly fastened to a cross arm or bracket supported by a pole or other support. Wire shall not interfere with, or be interfered with by, other wires on the pole line. Aerial cable shall be supported by messenger wire. An open-wire transmission line operating at voltage of 750 volts or more shall be placed not less than 4 feet above the nearest cross arm carrying active warning system circuits.

§ 234.245 Signs.

Each sign mounted on a highway-rail grade crossing signal post shall be maintained in good condition and be visible to the highway user.

INSPECTIONS AND TESTS

§ 234.247 Purpose of inspections and tests; removal from service of relay or device failing to meet test requirements.

(a) The inspections and tests set forth in §§ 234.249 through 234.271 are required at highway-rail grade crossings located on in service railroad tracks and shall be made to determine if the warning system and its component parts are maintained in a condition to perform their intended function.

(b) If a railroad elects not to comply with the requirements of §§ 234.249 through 234.271 because all tracks over the grade crossing are out of service or the railroad suspends operations during a portion of the year, and the grade crossing warning system is also temporarily taken out of service, a full inspection and all required tests must be successfully completed before railroad operations over the grade crossing resume.

(c) Any electronic device, relay, or other electromagnetic device that fails to meet the requirements of tests required by this part shall be removed from service and shall not be restored to service until its operating characteristics are in accordance with the limits within which such device or relay is designed to operate.

[61 FR 31806, June 20, 1996, as amended at 66 FR 49560, Sept. 28, 2001]

§ 234.249 Ground tests.

A test for grounds on each energy bus furnishing power to circuits that affect the safety of warning system operation shall be made when such energy bus is placed in service and at least once each month thereafter.

§ 234.251 Standby power.

Standby power shall be tested at least once each month.

§ 234.253 Flashing light units and lamp voltage.

(a) Each flashing light unit shall be inspected when installed and at least once every twelve months for proper alignment and frequency of flashes in accordance with installation specifications.

(b) Lamp voltage shall be tested when installed and at least once every 12 months thereafter.

(c) Each flashing light unit shall be inspected for proper visibility, dirt and damage to roundels and reflectors at least once each month.

§ 234.255 Gate arm and gate mechanism.

(a) Each gate arm and gate mechanism shall be inspected at least once each month.

(b) Gate arm movement shall be observed for proper operation at least once each month.

(c) Hold-clear devices shall be tested for proper operation at least once every 12 months.

§ 234.257 Warning system operation.

(a) Each highway-rail crossing warning system shall be tested to determine that it functions as intended when it is placed in service. Thereafter, it shall be tested at least once each month and whenever modified or disarranged.

(b) Warning bells or other stationary audible warning devices shall be tested when installed to determine that they function as intended. Thereafter, they shall be tested at least once each month and whenever modified or disarranged.

§ 234.259 Warning time.

Each crossing warning system shall be tested for the prescribed warning time at least once every 12 months and when the warning system is modified because of a change in train speeds. Electronic devices that accurately determine actual warning time may be used in performing such tests.

§ 234.261 Highway traffic signal pre-emption.

Highway traffic signal pre-emption interconnections, for which a railroad has maintenance responsibility, shall be tested at least once each month.

§ 234.263 Relays.

(a) Except as stated in paragraph (b) of this section, each relay that affects the proper functioning of a crossing warning system shall be tested at least once every four years.

(b)(1) Alternating current vane type relays, direct current polar type relays, and relays with soft iron magnetic structure shall be tested at least once every two years.

(2) Alternating current centrifugal type relays shall be tested at least once every 12 months.

(c) Testing of relays requiring testing on four year intervals shall be completed in accordance with the following schedule:

(1) Not less than 50% by the end of calendar year 1996;

(2) Not less than a total of 75% by the end of calendar year 1997; and

(3) One hundred percent by the end of calendar year 1998.

(d) Testing of relays requiring testing on two year intervals shall be completed by the end of calendar year 1996.

§ 234.265 Timing relays and timing devices.

Each timing relay and timing device shall be tested at least once every twelve months. The timing shall be maintained at not less than 90 percent nor more than 110 percent of the 41 predetermined time interval. The predetermined time interval shall be shown on the plans or marked on the timing relay or timing device. Timing devices which perform internal functions associated with motion detectors, motion sensors, and grade crossing predictors are not subject to the requirements of this section.

§ 234.267 Insulation resistance tests, wires in trunking and cables.

(a) Insulation resistance tests shall be made when wires or cables are installed and at least once every ten years thereafter.

(b) Insulation resistance tests shall be made between all conductors and ground, between conductors in each multiple conductor cable, and between conductors in trunking. Insulation resistance tests shall be performed when wires, cables, and insulation are dry.

(c) Subject to paragraph (d) of this section, when insulation resistance of wire or cable is found to be less than 500,000 ohms, prompt action shall be taken to repair or replace the defective wire or cable. Until such defective wire or cable is replaced, insulation resistance tests shall be made annually.

(d) A circuit with a conductor having an insulation resistance of less than 200,000 ohms shall not be used.

(e) Required insulation resistance testing that does not conform to the required testing schedule of this section shall be completed in accordance with the following schedule:

(1) Not less than 50% by the end of calendar year 1996;

(2) Not less than a total of 75% by the end of calendar year 1997; and

(3) One hundred percent by the end of calendar year 1998.

§ 234.269 Cut-out circuits.

Each cut-out circuit shall be tested at least once every three months to determine that the circuit functions as intended. For purposes of this section, a cut-out circuit is any circuit which overrides the operation of automatic warning systems. This includes both switch cut-out circuits and devices which enable personnel to manually override the operation of automatic warning systems.

§ 234.271 Insulated rail joints, bond wires, and track connections.

Insulated rail joints, bond wires, and track connections shall be inspected at least once every three months.

§ 234.273 Results of inspections and tests.

(a) Results of inspections and tests made in compliance with this part shall be recorded on forms provided by the railroad, or by electronic means, subject to approval by the Associate Administrator for Safety. Each record shall show the name of the railroad, AAR/DOT inventory number, place and date, equipment tested, results of tests, repairs, replacements, adjustments made, and condition in which the apparatus was left.

(b) Each record shall be signed or electronically coded by the employee making the test and shall be filed in the office of a supervisory official having jurisdiction. Records required to be kept shall be made available to FRA as provided by 49 U.S.C. 20107 (formerly § 208 of the Federal Railroad Safety Act of 1970 (45 U.S.C. 437)).

(c) Each record shall be retained until the next record for that test is filed but in no case for less than one year from the date of the test.

REQUIREMENTS FOR PROCESSOR-BASED SYSTEMS

§ 234.275 Processor-based systems.

(a) *Applicable definitions.* The definitions in § 236.903 of this chapter shall apply to this section, where applicable.

(b) *Use of performance standard authorized or required.*

(1) In lieu of compliance with the requirements of this subpart, a railroad may elect to qualify an existing processor-based product under part 236, subpart H of this chapter.

(2) Highway-rail grade crossing warning systems, subsystems, or components that are processor-based and that are first placed in service after June 6, 2005, which contain new or novel technology, or which provide safety-critical data to a railroad signal or train control system that is governed by part 236, subpart H of this chapter, shall also comply with those requirements. New or novel technology refers to a technology not previously recognized for use as of March 7, 2005.

(3) Products designed in accordance with subparts A through D of this part, which are not in service but are in the developmental stage prior to December 5, 2005 (or for which a request for exclusion was submitted prior to June 6, 2005 pursuant to § 236.911 of this chapter), may be excluded from the requirements of part 236, subpart H of this chapter upon notification to FRA by March 6, 2006, if placed in service by December 5, 2008 (or March 7, 2008 for those products for which a request for exclusion was submitted to FRA prior to June 6, 2005). Railroads may continue to implement and use these products and components from these existing products. A railroad may at any time elect to have products that are excluded made subject to 49 CFR part 236, subpart H, by submitting a Product Safety Plan as prescribed in § 236.913 of this chapter and otherwise complying with part 236, subpart H of this chapter.

(c) *Product safety plan justifications.* The Product Safety Plan (see § 236.903 of this chapter) must explain how the performance objective sought to be addressed by each of the particular requirements of this subpart is met by the product, why the objective is not relevant to the product's design, or how safety requirements are satisfied using alternative means. Deviation from those particular requirements is authorized if an adequate explanation is provided, making reference to relevant elements of the Product Safety Plan, and if the product satisfies the performance standard set forth in § 236.909 of this chapter. (See § 236.907(a)(14) of this chapter.)

(d) *Specific requirements.* The following exclusions from the latitude provided by this section apply:

(1) Nothing in this section authorizes deviation from applicable design requirements for automated warning devices at highway-rail grade crossings in the Manual on Uniform Traffic Control Devices (MUTCD), 2000 Millennium Edition, Federal Highway Administration (FHWA), dated December 18, 2000, including Errata #1 to MUTCD 2000 Millennium Edition dated June 14, 2001 (*http://mutcd.fhwa.dot.gov/*).

(2) Nothing in this section authorizes deviation from the following requirements of this subpart:

(i) § 234.207(b) (Adjustment, repair, or replacement of a component);

(ii) § 234.209(b) (Interference with normal functioning of system);

(iii) § 234.211 (Security of warning system apparatus);

(iv) § 234.217 (Flashing light units);

(v) § 234.219 (Gate arm lights and light cable);

(vi) § 234.221 (Lamp voltage);

(vii) § 234.223 (Gate arm);

(viii) § 234.225 (Activation of warning system);

(ix) § 234.227 (Train detection apparatus)—if a train detection circuit is employed to determine the train's presence;

(x) § 234.229 (Shunting sensitivity)—if a conventional track circuit is employed;

(xi) § 234.231 (Fouling wires)—if a conventional train detection circuit is employed;

(xii) § 234.233 (Rail joints)—if a track circuit is employed;

(xiii) §234.235 (Insulated rail joints)—if a track circuit is employed;

(xiv) §234.237 (Reverse switch cut-out circuit); or

(xv) §234.245 (Signs).

(e) *Separate justification for other than fail-safe design.* Deviation from the requirement of §234.203 (Control circuits) that circuits be designed on a fail-safe principle must be separately justified at the component, subsystem, and system level using the criteria of §236.909 of this chapter.

(f) *Software management control for certain systems not subject to a performance standard.* Any processor-based system, subsystem, or component subject to this part, which is not subject to the requirements of part 236, subpart H of this chapter but which provides safety-critical data to a signal or train control system shall be included in the software management control plan requirements as specified in §236.18 of this chapter.

[70 FR 72384, Dec. 5, 2005]

APPENDIX A TO PART 234—SCHEDULE OF CIVIL PENALTIES [1]

Section	Violation	Willful violation
Subpart B—Reports		
234.7 Accidents involving grade crossing signal failure	$5,000	$7,500
234.9 Grade crossing signal system failure reports	2,500	5,000
Subpart C—Response to Reports of Warning System Malfunction		
Sec.		
234.101 Employee notification rules	2,500	5,000
234.103 Timely response to report of malfunction	2,500	5,000
234.105 Activation failure		
(a) Failure to notify—train crews	5,000	7,500
Other railroads	5,000	7,500
(b) Failure to notify law enforcement agency	2,500	5,000
(c) Failure to comply with—flagging requirements	5,000	5,000
Speed restrictions	5,000	7,500
(d) Failure to activate horn or whistle	5,000	7,500
234.106 Partial activation		
(a) Failure to notify—train crews	5,000	7,500
Other railroads	5,000	7,500
(b) Failure to notify law enforcement agency	2,500	5,000
(c) Failure to comply with—flagging requirements speed restrictions	5,000	7,500
(d) Failure to activate horn or whistle	5,000	7,500
234.107 False activation		
(a) Failure to notify—train crews	5,000	7,500
Other railroads	5,000	7,500
(b) Failure to notify law enforcement agency	2,500	5,000
(c) Failure to comply with—flagging requirements	5,000	7,500
Speed restrictions	5,000	7,500
(d) Failure to activate horn or whistle	5,000	7,500
234.109 Recordkeeping	1,000	2,000
Subpart D—Maintenance, Inspection, and Testing		
Maintenance Standards:		
234.201 Location of plans	1,000	2,000
234.203 Control circuits	1,000	2,000
234.205 Operating characteristics of warning system apparatus	2,500	5,000
234.207 Adjustment, repair, or replacement of component	2,500	5,000
234.209 Interference with normal functioning of system	5,000	7,500
234.211 Locking of warning system apparatus	1,000	2,000
234.213 Grounds	1,000	2,000
234.215 Standby power system	5,000	7,500
234.217 Flashing light units	1,000	2,000
234.219 Gate arm lights and light cable	1,000	2,000
234.221 Lamp voltage	1,000	2,000
234.223 Gate arm	1,000	2,000
234.225 Activation of warning system	5,000	7,500
234.227 Train detection apparatus	2,500	5,000
234.229 Shunting sensitivity	2,500	5,000
234.231 Fouling wires	1,000	2,000
234.233 Rail joints	1,000	2,000
234.235 Insulated rail joints	1,000	2,000
234.237 Switch equipped with circuit controller	1,000	2,000

Section		Violation	Willful violation
234.239	Tagging of wires and interference of wires or tags with signal apparatus	1,000	2,000
234.241	Protection of insulated wire; splice in underground wire	1,000	2,000
234.243	Wire on pole line and aerial cable	1,000	2,000
234.245	Signs	1,000	2,000
Inspections and Tests:			
234.247	Purpose of inspections and tests; removal from service of relay or device failing to meet test requirements	2,500	5,000
234.249	Ground tests	2,500	5,000
234.251	Standby power	5,000	7,500
234.253	Flashing light units and lamp voltage	1,000	2,000
234.255	Gate arm and gate mechanism	1,000	2,000
234.257	Warning system operation	2,500	5,000
234.259	Warning time	1,000	2,000
234.261	Highway traffic signal pre-emption	1,000	2,000
234.263	Relays	1,000	2,000
234.265	Timing relays and timing devices	1,000	2,000
234.267	Insulation resistance tests, wires in trunking and cables	2,500	5,000
234.269	Cut-out circuits	1,000	2,000
234.271	Insulated rail joints, bond wires, and track connections	2,500	5,000
234.273	Results of tests	1,000	2,000
234.275	Processor-Based Systems	$5,000	$7,500

[1] A penalty may be assessed against an individual only for a willful violation. The Administrator reserves the right to assess a penalty of up to $27,000 for any violation where circumstances warrant. See 49 CFR Part 209, Appendix A.

[61 FR 31806, June 20, 1996, as amended at 63 FR 11623, Mar. 10, 1998; 69 FR 30595, May 28, 2004; 70 FR 11094, Mar. 7, 2005]

APPENDIX B TO PART 234—ALTERNATE METHODS OF PROTECTION UNDER 49 CFR 234.105(c), 234.106, AND 234.107(c)

[This is a summary—see body of text for complete requirements]

	Flagger for each direction of traffic	Police officer present	Flagger present, but not one for each direction of traffic	No flagger/no police
False Activation	Normal Speed	Normal Speed	Proceed with caution—maximum speed of 15 mph.	Proceed with caution—maximum speed of 15 mph.
Partial Activation*	Normal Speed	Normal Speed	Proceed with caution—maximum speed of 15 mph.	Proceed with caution—maximum speed of 15 mph.
Activation Failure**	Normal Speed	Normal Speed	Proceed with caution—maximum speed of 15 mph.	Stop: Crewmember flag traffic and reboard.

*Partial activiation—full warning not given.
Non-gated crossing with one pair of lights designed to flash alternatively, one light does not work (and back-lights from other side not visible).
Gated crossing—gate arm not horizontal; or any portion of a gate arm is missing if that portion had held a gate arm flashing light.
**Activitation failure includes—if more than 50% of the flashing lights on any approach lane not functioning; or if an approach lane has two or more pairs of flashing lights, there is not at least one pair operating as intended.

PART 235—INSTRUCTIONS GOVERNING APPLICATIONS FOR APPROVAL OF A DISCONTINUANCE OR MATERIAL MODIFICATION OF A SIGNAL SYSTEM OR RELIEF FROM THE REQUIREMENTS OF PART 236

Sec.

AUTHORITY: 49 U.S.C. 20103, 20107; 28 U.S.C. 2461, note; and 49 CFR 1.49.

SOURCE: 49 FR 3380, Jan. 26, 1984, unless otherwise noted.

§ 235.1 Scope.

This part prescribes application for approval to discontinue or materially